Work Order ID 79770 *79770*

February-03-12 8:14:48 AM

Item ID: D205-634-041 **Accept** *N900040100* **Setup** **Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run **Start** *NR1*

Approvals: **Process Plan:** M.C.J **Date:** 12/02/03 **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D2580-041	(DEO) Rev.E

100 0.00

100 DOCUMENT CONTROL MCJ 12/04/03

DC

Memo 0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG005

110 0.00

110 BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo 0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

PC 12/03/05

B79770

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** ________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 79770

February-03-12 8:14:48 AM

79770

Item ID: D205-634-041
Revision ID:
Item Name: Replacement Skidtube

Accept *N900040100*

Setup **Start** *NS1*
Stop *NS2*

Start Date: 03/02/2012 **Start Qty:** 1.00 *1*
Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____
QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____

Run **Start** *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* Skidtubes Skidtubes		0.00							
	Memo 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004	0.00				[signature] 12-03-12			
130 *130* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00	[signature]			12-3-12			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	**STEP**	**Description of NC** Section A	**Initial** Chief Eng	**Action Description** Chief Eng	**Sign & Date**	**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
	S	-3-51						

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID 79770

February-03-12 8:14:48 AM

79770

Item ID: D205-634-041
Revision ID:
Item Name: Replacement Skidtube

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

Start Date: 03/02/2012 **Start Qty:** 1.00 *1*
Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Run Start *NR1*
Stop *NR2*

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *140* Skidtubes		0.00							
Skidtubes	**Memo** 1-Weld step D2576 as per Dwg. D2580 and QSI 004 A/R Aluminum Rod MB20164 BE 12/03/13 2-Grind welds on step as per Dwg D2580 ~~/12-03-13~~ 3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expantion and finish with 1/2 x 18G to achieve dwg dimention. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web.Deburr 6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr 7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr 12-03-13	0.00							
150 *150* QC	QC10- Inspect visual per QSI004- ground welds	0.00 S 12/03/13							
Quality Control	**Memo**	0.00							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 79770

February-03-12 8:14:48 AM

79770

Item ID: D205-634-041 **Accept** *N900040100* **Setup** **Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run **Start** *NR1*

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	QC5- Inspect part completeness to step on W/O **Memo**	0.00 0.00				BL	12-3-17		
170 *170* HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 **Memo** Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.	0.00 0.00				1X	0	M	12/03/17
180 *180* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum M120222 **Memo** START TIME: 3:15 OVEN TEMPERATURE: 320° FINISH TIME: 3:45	0.00 0.00				1		BL	12-3-12

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: __________

Resolution: ___________________ Disposition: ____________________ QA: N/C Closed: __________ Date: __________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 79770
February-03-12 8:14:48 AM

79770

Item ID: D205-634-041
Revision ID:
Item Name: Replacement Skidtube

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

Start Date: 03/02/2012 **Start Qty:** 1.00 *1*
Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1*
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ____________ **Date:** ________
QC: ________________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC3- Inspect Part Finish	0.00							
190 QC Quality Control	Memo	0.00				1	ϕ	HL	12/03/27

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** __________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 79770
February-03-12 8:14:48 AM

79770

Item ID: D205-634-041
Revision ID:
Item Name: Replacement Skidtube
Start Date: 03/02/2012 **Start Qty:** 1.00 *1*
Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1*
Reference:

Accept *N900040100*

Setup **Start** *NS1*
Stop *NS2*

Cust Item ID:
Customer:

Run **Start** *NR1*
Stop *NR2*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________
QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200 *200* HandFinish Hand Finishing		0.00 0.00				1	0		ML 1103/26

Memo

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates
A/R Sikaflex-291 A41120318
Sikaflex expire date: 12/08

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive
A/R Sikaflex-291 A41120318
Sikaflex expire date: 11/08

5-Wing Walk as per Dwg D2580 and QSI 005 4.4
Batch: 141120959

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Item ID: D205-634-041 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID:
Item Name: Replacement Skidtube **Stop** *NS2*

Start Date: 03/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**
Required Date: 21/02/2012 **Req'd Qty:** 1.00 *1* **Customer:**
Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run Start** *NR1*
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 *210* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							
	Memo Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024	0.00 S 12/03/29							
220 *220* Packaging Packaging	Packaging	0.00				SP 12-04-03			
	Memo Identify and pack for shipping as per PPPD205-634-041 Location:______ PPP Rev: M	0.00							
230 *230* QC Quality Control	QC21- Final Inspection - Work Order Release	0.00				MLJ 12/04/03			
	Memo	0.00							

R12-043

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

February-03-12 8:14:52 AM

Work Order ID: 79770 *79770*

Parent Item: D205-634-041 *D205-634-041*

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS
PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1 *D4202-1* Spacer		Manufactured	No			140	Each	840.0000	20 **	20 (20)	[signature]	12-03-13	

Location		Loc Qty	Loc Code
LG		326	
	77727	123	
	77729	203	
LG002		514	
	78806	514	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 79770 *79770*

Parent Item: D205-634-041 *D205-634-041*

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

D2580-1 Manufactured No 110 Each 16.0000 1 1

D2580-1 **

205 Skidtube bent detail

B80239

Location		Loc Qty	Loc Code
LG		13	
	76570	2	
	77679	2	
	78240	1	
	79281	2	
	79282	2	
	79389	2	
	79390	2	
ST		1	
	78701	1	
ST046		2	
	78702	2	

D2576-3 Manufactured No 140 Each 75.0000 1 1

D2576-3 **

Step (maching detail)

Location		Loc Qty	Loc Code
LG		75	
	70883	25	
	74136	50	

D2855 Manufactured No 200 Each 75.0000 1 1

D2855 **

Cap

Location		Loc Qty	Loc Code
FP002		75	
	65519	2	
	73347	30	
	75074	43	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Work Order ID: 79770

79770

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

AN3-5A Purchased No 200 Each 1,244.000 2 2

AN3-5A ** 12/03/27

Bolt

Location		Loc Qty	Loc Code	
ST350		1244		
	115371	46		
	117423	204		
	118626	294		x2
	119355	200		
	120187	500		

AN960JD10L NAS1149D0332J Purchased No 200 Each 0.0000 2 2

AN960JD10L X ** M120644 (x2) 12/03/27

Washer

ALS7-1032-130 Purchased No 200 Each 2,472.000 50 50

ALS7-1032-130 ** 12/03/27

Insert

Location		Loc Qty	Loc Code	
ST280		328		
	117717	27		
	118966	22		
	119775	279		
ST281		71		
	119794	71		
ST282		2073		
	119530	73		
	120181	2000		x50

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Work Order ID: 79770 *79770*

Parent Item: D205-634-041 *D205-634-041*

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

AN3C4A | Purchased | No | 200 | Each | 3,946.000 | 50 | 50

AN3C4A ** GL 12/03/27

BOLT

Location	Loc Qty	Loc Code	
ST350	3946		
117313	2		
117688	5		
117872	10		
118112	16		
118451	2		
118838	1		
119749	410		
120187	2000		
120423	500		
120521	1000		X50

AN960C10L NAS1149C0332R | Purchased | No | 200 | Each | 0.0000 | 50 | 50

AN960C10L ✓ ** M120648 (x50) GL 12/03/27

washer

D3566-13 | Manufactured | No | 200 | Each | 55.0000 | 1 | 1

D3566-13 ** GL 12/03/27

Gasket

Location	Loc Qty	Loc Code	
FP002	55		
76947	55		X1

D3566-5 | Manufactured | No | 200 | Each | 30.0000 | 1 | 1

D3566-5 ** B80374 (x1) GL 12/03/27

Gasket

Location	Loc Qty	Loc Code
FP002	30	
76945	30	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Picklist Print

February-03-12 8:14:52 AM

Work Order ID: 79770 *79770*

Parent Item: D205-634-041 *D205-634-041*

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

D3566-1 Manufactured No 200 Each 50.0000 2 2

D3566-1 ** B81619 (x2) [signature] 12/03/27

Gasket

Location		Loc Qty	Loc Code
FP002		50	
	68924	2	
	76942	2	
	77569	24	
	78808	22	

D3564-11 Manufactured No 200 Each 12.0000 1 1

D3564-11 ** B77056 (x1) [signature] 12/03/27

Wearshoe

Location		Loc Qty	Loc Code
FP		11	
	76268	11	
FP001		1	
	77614	1	

D3564-13 Manufactured No 200 Each 42.0000 1 1

D3564-13 ** [signature] 12/03/27

Wearshoe

Location		Loc Qty	Loc Code	
FP001		21		
	71594	1		
	75045	5		
	77610	15		x1
FP002		21		
	76946	21		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: ____________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 79770

79770

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

D3564-9 | Manufactured | No | 200 | Each | 13.0000 | 1 | 1

D3564-9

Wearshoe

** B38872 (x1) JH 12/03/27

Location		Loc Qty	Loc Code	
FP001		13		______
	67590	4		______
	69943	1		______
	77613	8		______

D3564-5 | Manufactured | No | 200 | Each | 42.0000 | 1 | 1

D3564-5

Wearshoe

** B80343 (x1) JH 12/03/27

Location		Loc Qty	Loc Code	
FG		2		______
	34806	2		______
FP001		40		______
	73330	1		______
	76269	12		______
	76944	15		______
	77609	12		______

D2594-3 | Manufactured | No | 200 | Each | 1,266.000 | 16 | 16

D2594-3

O-Ring, 205 Skidtube

** B79755 (x16) JH 12/03/27

Location		Loc Qty	Loc Code	
FP001		1266		______
	65518	41		______
	73490	175		______
	79496	1000		______
	79573	50		______

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID: 79770

79770

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 03/02/2012 **Required Date:** 21/02/2012

Start Qty: 1.00 **Required Qty:** 1.00

D2594-1 Manufactured No 200 Each 799.0000 16 16

D2594-1 X ** Hl 11/03/27

Plug, 205 Skidtube

Location		Loc Qty	Loc Code	
FP001		498		
	73401	30		
	74442	34		
	74869	184		
	77035 (LAST OF BATCH)	250		
FP-A		301		X16
	73401	0		
	76075	0		
	78590	301		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

LIST OF MATERIALS

ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
1	X			D2580-041	SKIDTUBE ASSEMBLY
2		X		D2580-045	SKIDTUBE ASSEMBLY
3			X	D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1	D2500-1-190	EXTRUSION
5			16	D2570	BUSHING
6	1	1	1	D2576-3	STEP
7	20	24	25	D2579	SPACER
8	16	16	8	D2594-1	PLUG
9	16	16	8	D2594-3	O-RING
10	1	1	1	D2596	205 WEB
11	1	1	1	D2855	AFT CAP
12	1	1		D3564-5	WEARSHOE
13	1	1		D3564-9	WEARSHOE
14	1	1		D3564-11	WEARSHOE
15	1	1		D3564-13	WEARSHOE
16	2	2		D3566-1	GASKET
17	1	1		D3566-5	GASKET
18	1	1		D3566-13	GASKET
19			1	D4406-041	WEARPLATE ASSEMBLY
20			1	D4406-043	WEARPLATE ASSEMBLY
21	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
22	50	50		AN3C4A	BOLT
23	2	2	2	AN3-5A	BOLT
24			8	AN4-45A	BOLT
25	50	50		NAS1149C0332R	WASHER (AN960C10L)
26	2	2	2	NAS1149D0332J	WASHER (AN960JD10L)
27			8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

1) MATERIAL: N/A
2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
   POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
   POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3
   BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: NONE
7) WEIGHT: D2580-041 = 34.5 lbs
   D2580-045 = 34.5 lbs
   D2580-047 = 37.7 lbs
8) WELDING PER DART QSI 004.
9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL ∅0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/-291.
12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DEO ATTACHED

RELEASED 2011-08-29

REV.	DESCRIPTION	BY	DATE
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16

DESIGN	
DRAWN	RF
CHECKED	
MFG. APPR.	
APPROVED	
DE APPR.	
DATE	11.06.21

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D2580 — REV. E — SHEET 1 OF 8

TITLE: 205 SKIDTUBE ASSEMBLY — SCALE: NTS

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

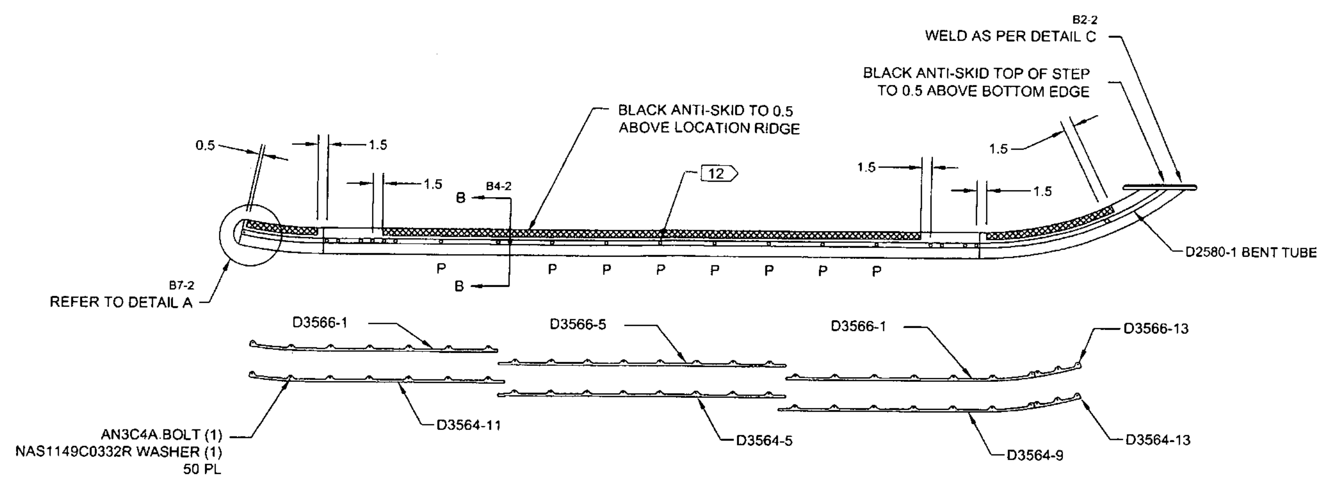
Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79770

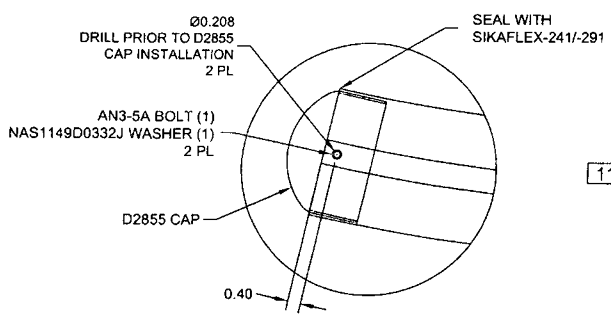


D2580-041 ASSEMBLY DETAIL

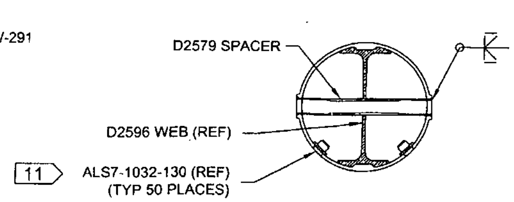
DEO ATTACHED

RELEASED 2011-08-29 D

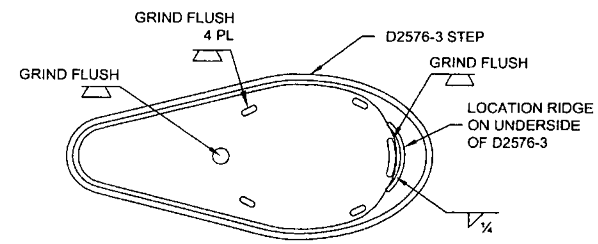
DETAIL A C7-2
SCALE 5X



SECTION B-B D5-2
SCALE 5X



DETAIL C D3-2
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DESIGN	[signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED	[signature]	DRAWING NO. D2580 — REV. E — SHEET 2 OF 8
MFG. APPR.	[signature]	
APPROVED	[signature]	TITLE 205 SKIDTUBE ASSEMBLY — SCALE NTS
DE APPR.	[signature]	
DATE	11.06.21	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

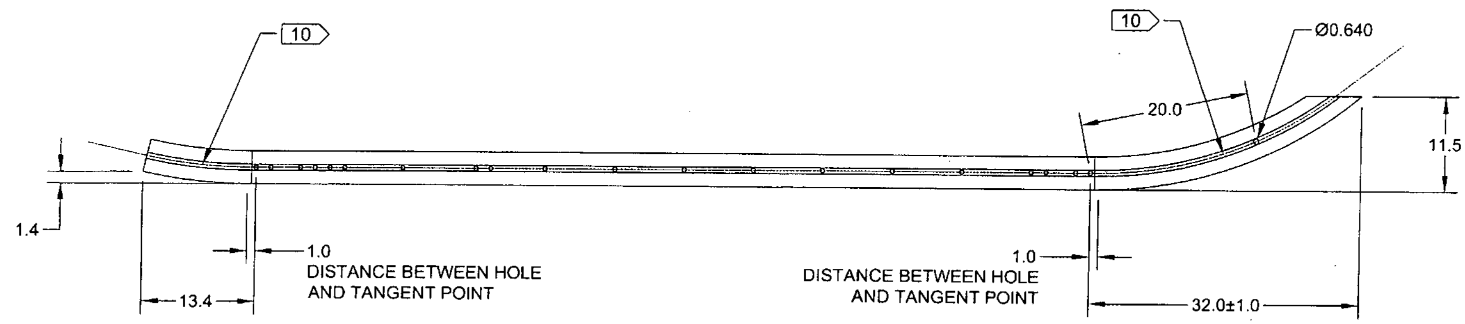
Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79770



D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED

RELEASED 2011-08-28

DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D2580 — REV. E — SHEET 3 OF 8
MFG. APPR.		
APPROVED		TITLE 205 SKIDTUBE ASSEMBLY — SCALE NTS
DE APPR.		
DATE	11.06.21	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

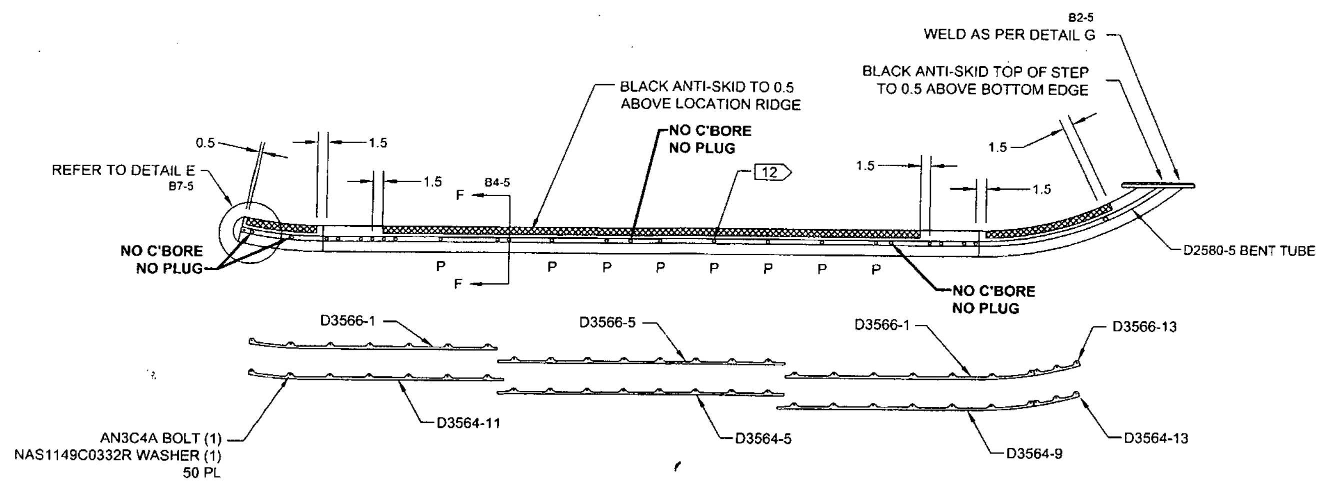
Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

79770

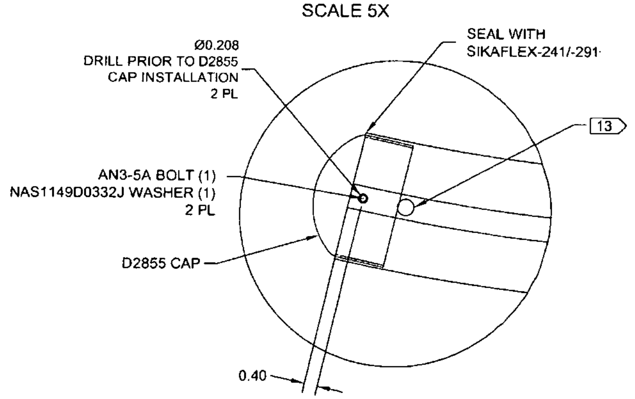


D2580-045 ASSEMBLY DETAIL

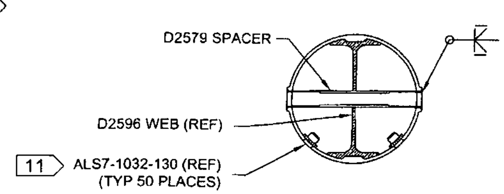
DEO ATTACHED

RELEASED 2011-08-29

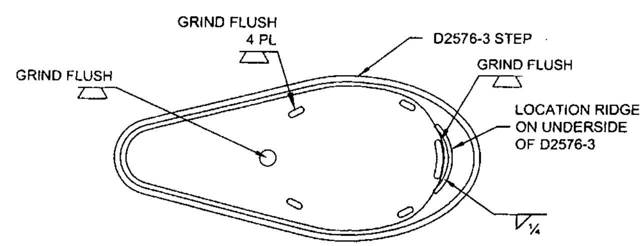
DETAIL E D7-5
SCALE 5X



SECTION F-F D5-5
SCALE 5X



DETAIL G D3-5
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (24 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DESIGN	[signature]	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. E
CHECKED	[signature]	D2580	SHEET 4 OF 8
MFG. APPR.	[signature]	TITLE	SCALE
APPROVED	[signature]	205 SKIDTUBE ASSEMBLY	NTS
DE APPR.	[signature]		
DATE	11.06.21		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ PAR #: ______ Fault Category: ______________ NCR: Yes No DQA: _____ Date: ________

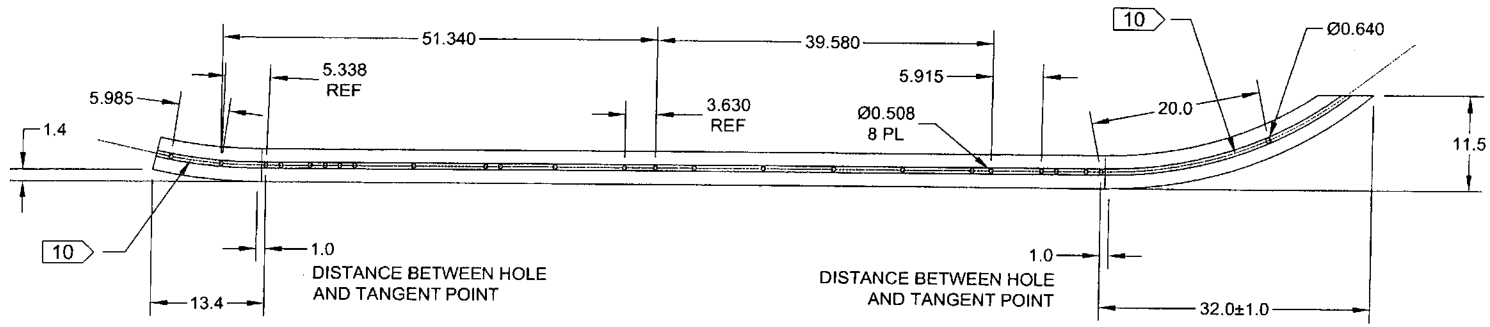
Resolution: ______________ Disposition: ______________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

79770



D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED

RELEASED 2011-08-29

DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D2580	REV. E SHEET 5 OF 8
CHECKED		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	11.06.21		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

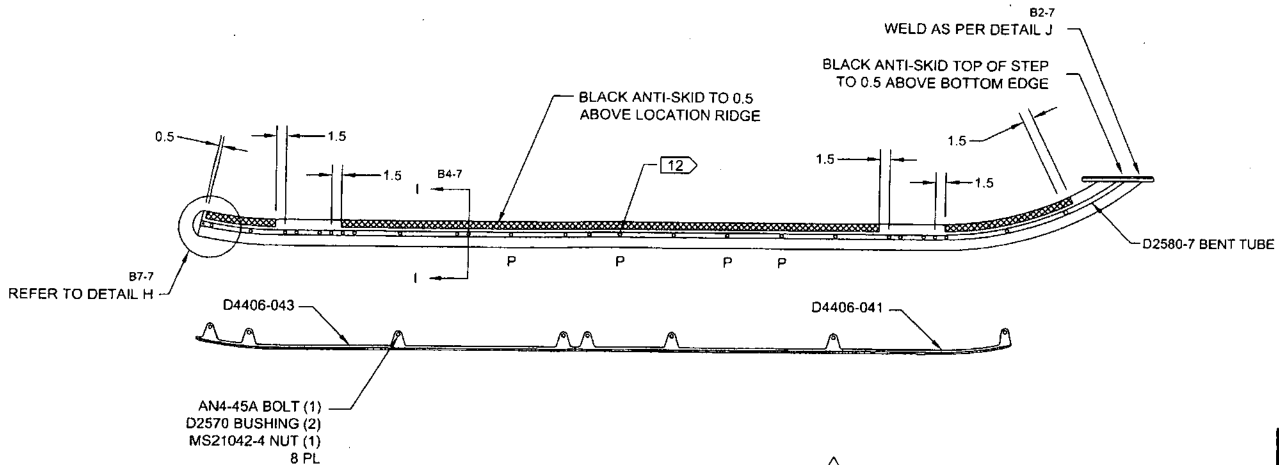
Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79770

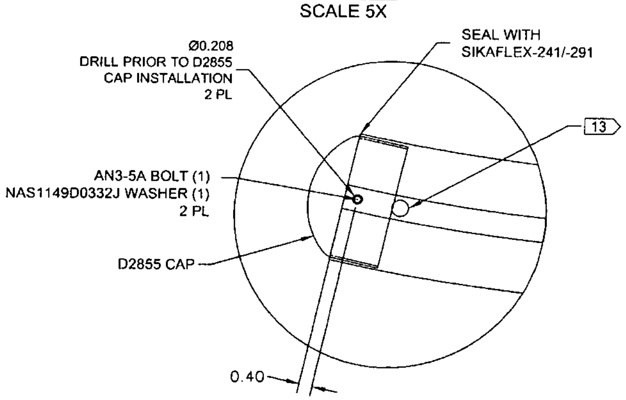


D2580-047 ASSEMBLY DETAIL E

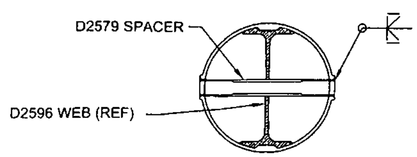
DEO ATTACHED

RELEASED 2011-08-29

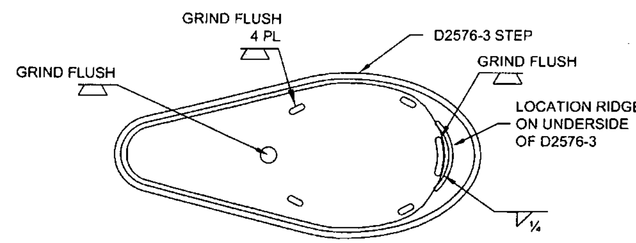
DETAIL H C6-7
SCALE 5X



SECTION I-I D5-7
SCALE 5X



DETAIL J D3-7
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (25 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DESIGN	[signature]	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. D2580 — REV. E — SHEET 6 OF 8
CHECKED	[signature]	
MFG. APPR.	[signature]	TITLE 205 SKIDTUBE ASSEMBLY — SCALE NTS
APPROVED	[signature]	
DE APPR.	[signature]	
DATE	11.06.21	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

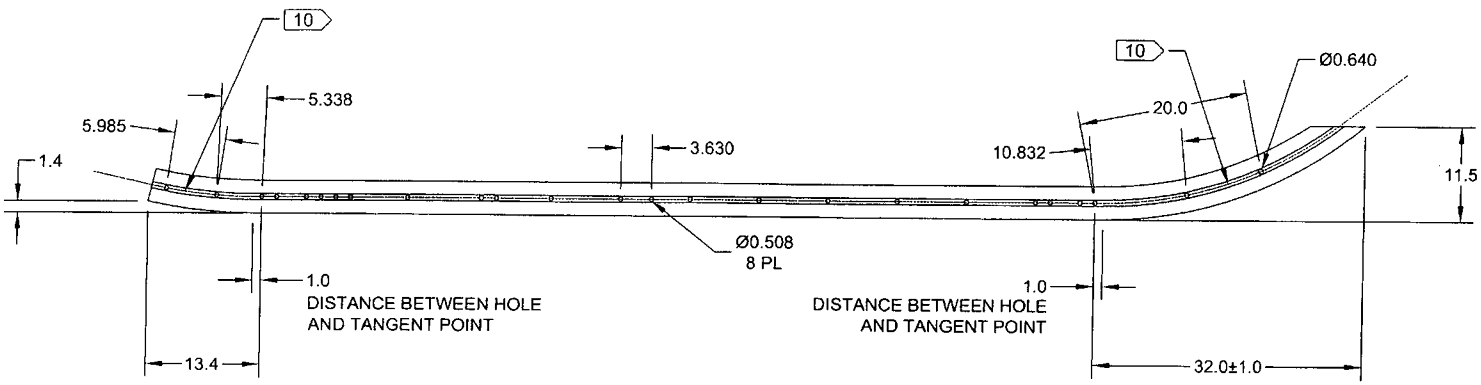
Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

79770



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE) E

DEO ATTACHED

RELEASED 2011-08-29

DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO. D2580	REV. E SHEET 7 OF 8
MFG. APPR.			
APPROVED		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
DE APPR.			
DATE	11.06.21	COPYRIGHT © 1996 BY DART AEROSPACE LTD	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

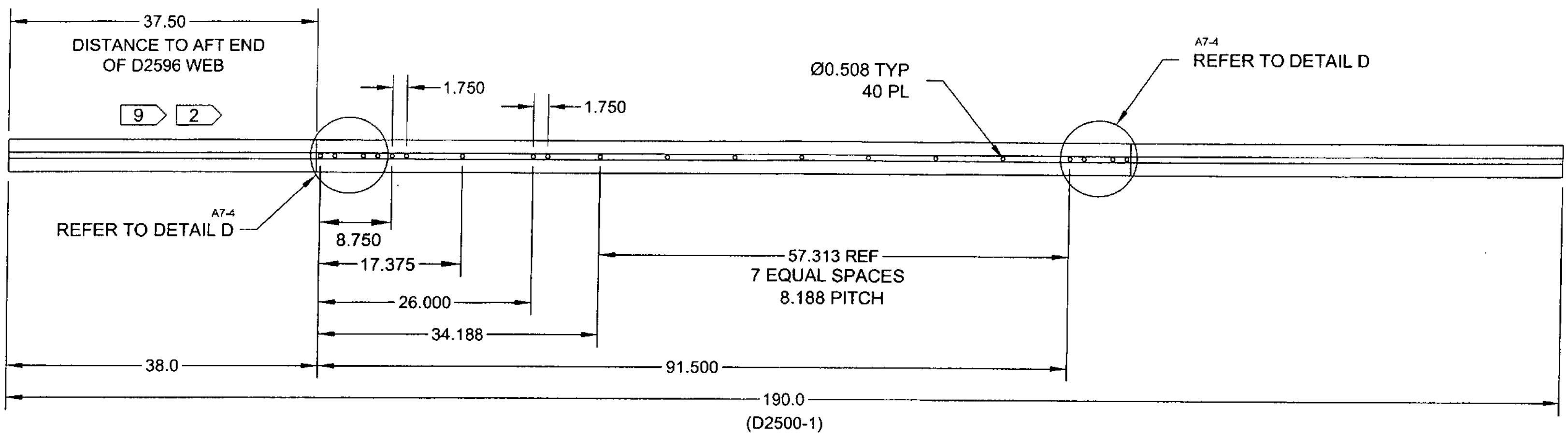
Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

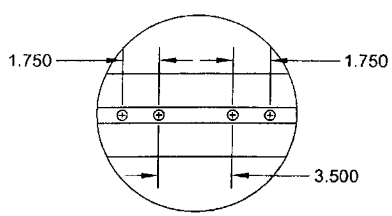
79770



D2580-101 TUBE

DEO ATTACHED

RELEASED 2011-08-29



DETAIL D D3-4 C7-4
SCALE 5X

DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D2580 — REV. E, SHEET 8 OF 8
MFG. APPR.		
APPROVED		TITLE 205 SKIDTUBE ASSEMBLY — SCALE NTS
DE APPR.		
DATE	11.06.21	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN [signature]	CHECKED ASS	MFG. APPR. EC	APPROVED [signature]	DE APPR. [signature]	
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	

PURPOSE:
CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:
PARTS LIST IS AMENDED AS FOLLOWS:

WAS

QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
20	24	25	D2579	CROSS BOLT SPACER

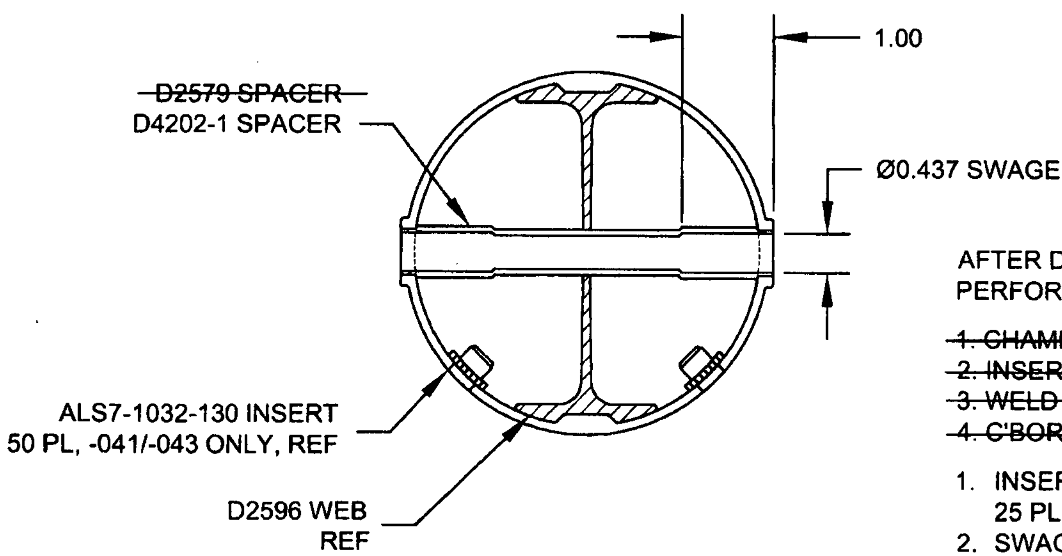
IS

QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

*** FOR -045 SKIDTUBE ONLY:**
WELD 4X D2579 SPACERS PER DWG
IN LOCATIONS MARKED **"NO C'BORE".**
REF SHEET 4 OF DWG.

RELEASED 2011-12-14

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

~~1. CHAMFER HOLE 0.050 X 45°~~
~~2. INSERT D2579 SPACER (20 PLACES)~~
~~3. WELD INTO PLACE AND GRIND FLUSH~~
~~4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

SECTION B-B, F-F, I-I
NOT TO SCALE

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: ________________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries